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Sensory Evaluation of Riesling Clones

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Introduction

A study was undertaken in December of 1986 to evaluate Riesling wines made from clonal material from the 1985 and 1986 vintages grown at a cooperative plot at Champoeg Vineyard. The objective was to have a trained panel evaluate differences in aroma and flavor-by-mouth descriptors to determine:

1. The change in sensory character over vintages/age.
2. The differences in clones across individual years and with years combined.

It was of interest to determine if clonal differences were as strong as vintage/age effects.

How Study Was Conducted

A trained ten-member sensory panel described the aroma (overall intensity, fruity, floral, spicy, herbal, vegetative, smokey, sweet and pungent) and flavor-by-mouth (sweetness, acidity, bitterness and astringency) of the experimental wines. The samples were rated for each descriptor using a 9-point intensity scale (1 = none to 9 = extremely intense). Each vintage was tested separately in triplicate over three test sessions.

The clones evaluated were from Colmar, France, Colmar 813, and the University of California at Davis, UCD9, and UCD4 grown at Champoeg Vineyard.

Results and Discussion

Many differences were found between the three clones when 1985 and 1986 vintages were analyzed together (Table 1). The UCD 9 clone was rated the highest in fruity, smokey, sweet and pungent aroma. UCD 4 was significantly lower than the other clones in both fruity and sweet aroma. Colmar 813 was rated most acidic, while UCD 9 was rated most astringent. The statistical differences noted on Table 1 should be considered major clonal differences as they were significant for both years evaluated.

Table 1. White Riesling Mean Intensity Ratings* (1985 and 1986 combined) for significantly different descriptors

Aroma	Colmar 813	UCD9	UCD4
Fruity	4.60 ^a	4.70 ^a	3.97 ^b
Smokey	1.38 ^b	1.90 ^a	1.82 ^a
Sweet	2.97 ^a	3.03 ^a	2.38 ^b
Pungent	2.08 ^b	2.52 ^a	2.10 ^b
Flavor-By-Mouth			
Acidity	5.08 ^a	4.80 ^b	4.68 ^b
Astringency	3.52 ^b	3.85 ^a	3.38 ^b

*Intensity scale: 1=none, 9 = extreme

ab Means with common letters are not significantly different ($p < 0.05$).

Some differences in clones were not consistent across years (Table 2). For example, for 1985 wines, UCD 9 was rated significantly more spicy than Colmar 813, however just the opposite occurred for the 1986 wines where Colmar 813 was significantly more spicy than UCD 9. A similar cross-over effect is seen with vegetative character except the direction of the change differs, as the clones that were rated high in spicy character were rated low in vegetative character. For the 1985 wines, Colmar 813 was rated significantly higher than UCD 9 in vegetative character. For the 1986 wines, UCD 9 was rated significantly higher than Colmar 813. These differences were not apparent when the data was analyzed with years combined (Table 1), as the differences were obscured by averaging.

Table 2. Spicy and Vegetative Aroma Mean Intensity Ratings of on Individual Clones for 1985 and 1986 Vintages

Spicy Aroma	Col 813	UCD9	UCD4
1985	2.07 ^a	2.57 ^b	2.37 ^{ab}
1986	3.23 ^b	2.67 ^a	2.87 ^{ab}
Vegetative Aroma			
1985	2.20 ^b	1.53 ^a	2.07 ^b
1986	1.87 ^a	2.40 ^b	2.03 ^{ab}

*Intensity scale: 1=none, 9 = extreme

ab Means with common letters are not significantly different ($p < 0.05$).

It is important to also look at how consistent the clones are in character from year to year. UCD 9 was very consistent in spicy character (i.e. unaffected by vintage/age) with a mean rating of 2.57 for 1985 and 2.67 for 1986. However, Colmar 813 was highly effected by vintage/age with a much lower spicy aroma rating in the 1985 wine. When the wines are evaluated again this year we will be able to see if the

spicy aroma of Col 813 decreases with age or if it is more affected by vintage and holds its spicy character. For vegetative character, UCD 9 was very different from 1985 to 1986 while both UCD 4 and Colmar 813 were more consistent.

The clonal wines were not judged to be different in overall aroma intensity even though they were judged to be quite different in aroma character. Colmar 813 and UCD 9 were very similar in sweet, fruity character, but UCD 9 was significantly more smokey and pungent (Table 1). UCD 4 was low in sweet, fruity character, similar in smokey character to UCD 9, but low in pungency. Because of the compound effect of vintage and age, vintage/age differences cannot be fully explained until more vintages can be included in the study. Our goal is to continue the evaluation of these clones so that winemakers and grape growers can see the effect of vintage as well as how the wines change with age. With this data they can make an informed choice of clone and insure consistent high quality wine. With these particular clones, the choice may be made more in sensory quality than on viticultural data, as the clones were all very similar in Brix (20.2 - 20.7), titratable acidity (8.2 - 8.9 g/L), pH (2.98 - 3.04), cluster weight (101 -108 g), and yield (6.7 - 7.1 Kg/vine).